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Patented Nov. 21, 1899.

J. COLDWELL & C. G. GILDARD.
ELECTRICAL STOP MOTION FOR LOOMS.

Application filed May 18, 1899.

(No Model.)

2 Sheets—Sheet 1.

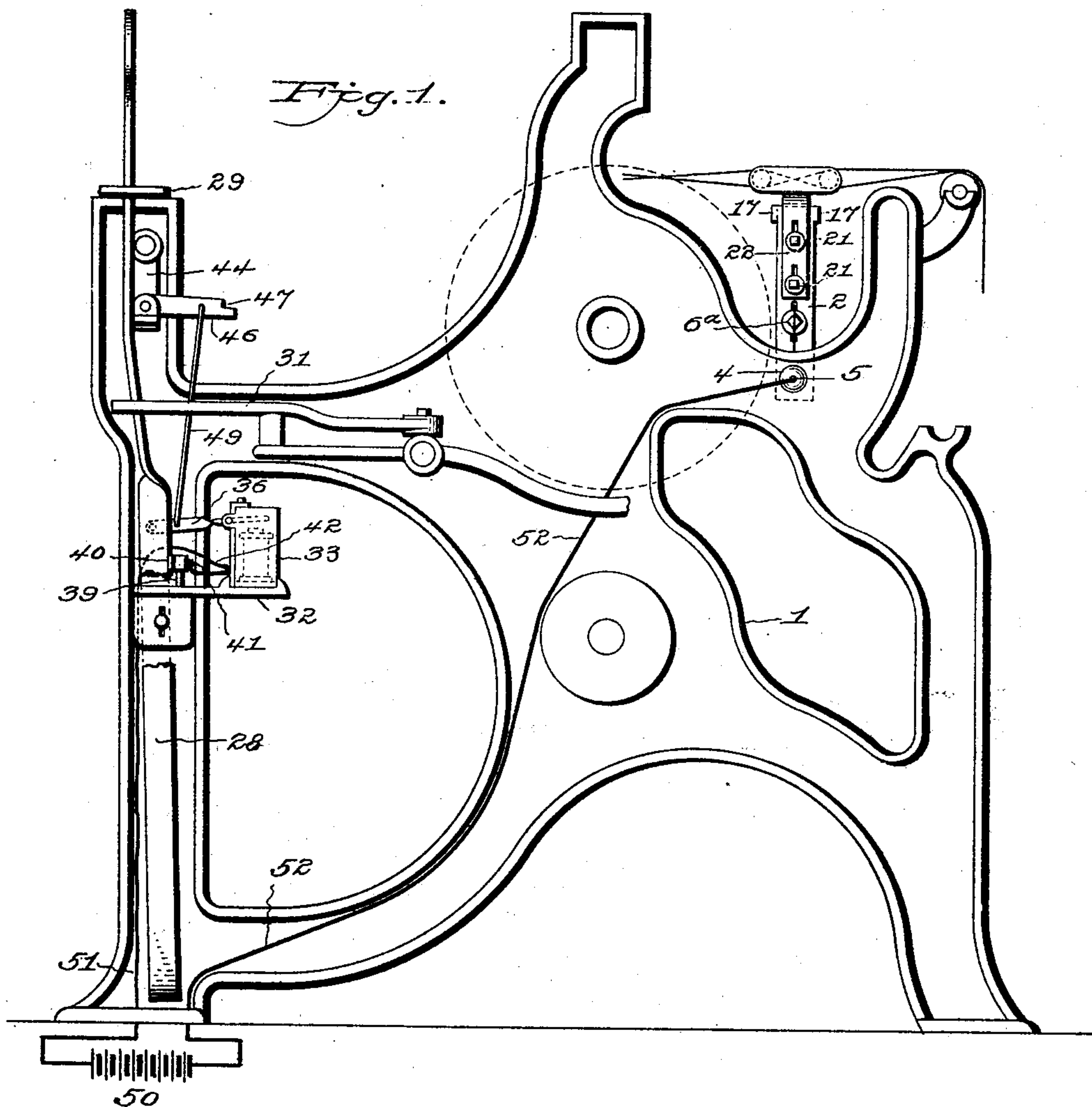


Fig. 2.

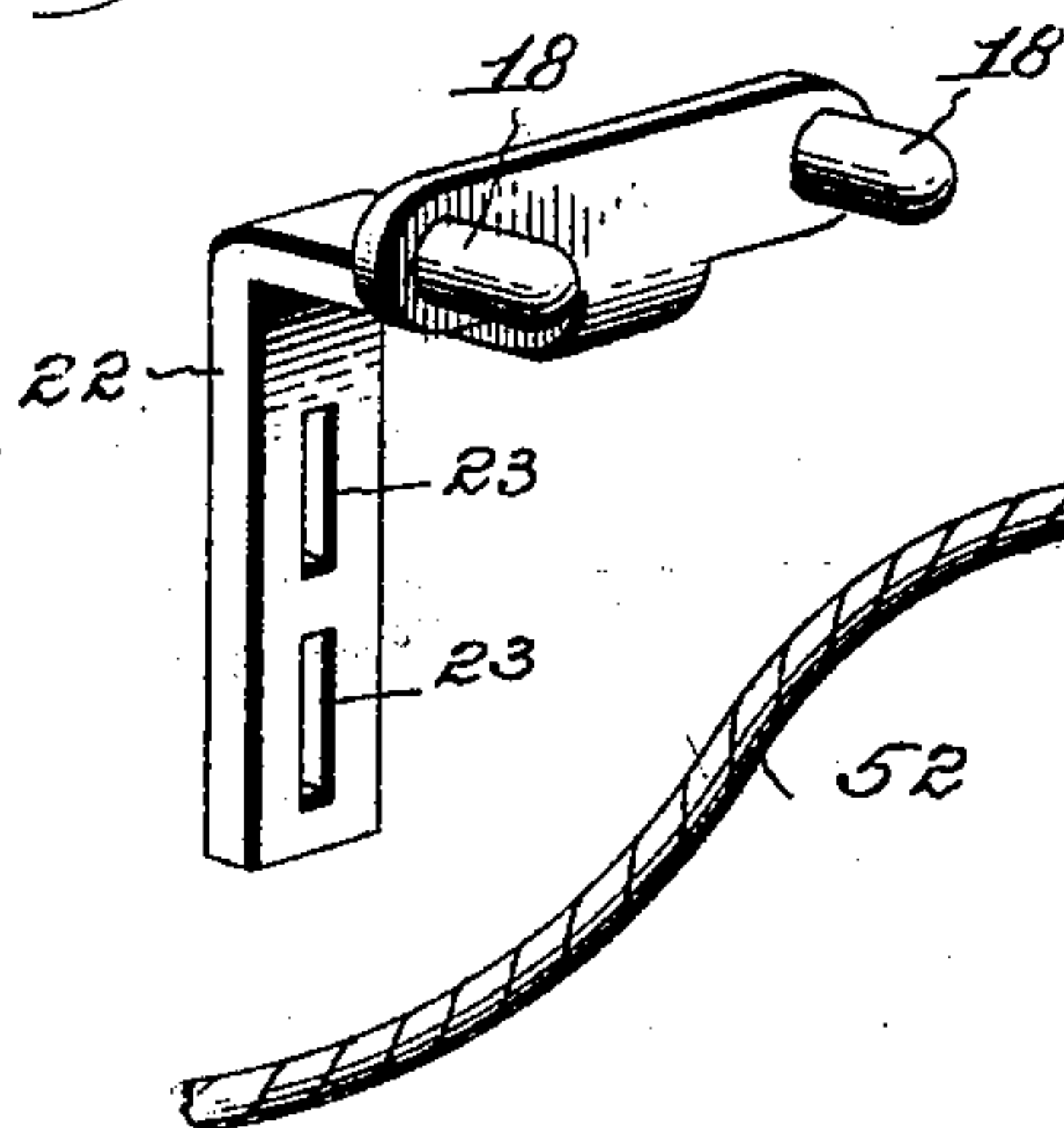
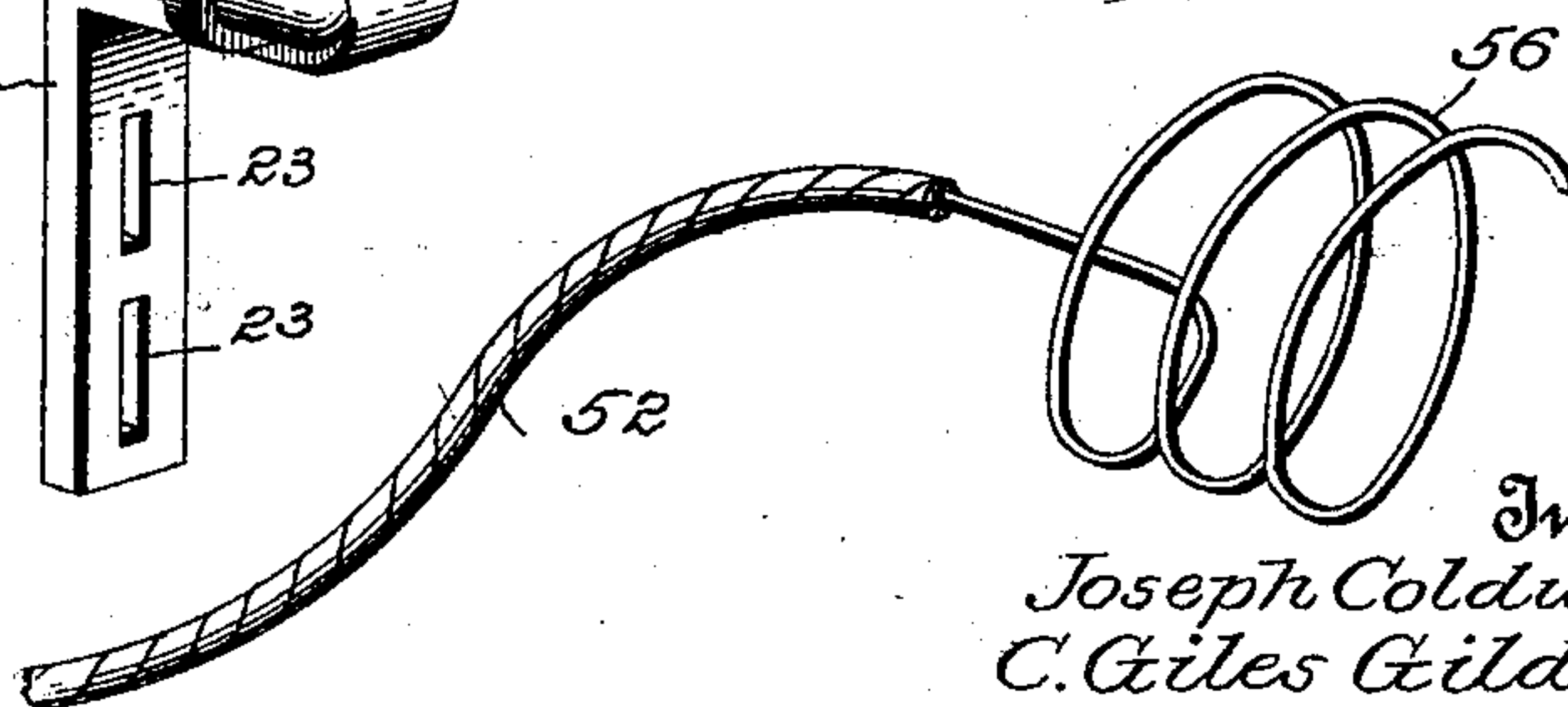


Fig. 3.



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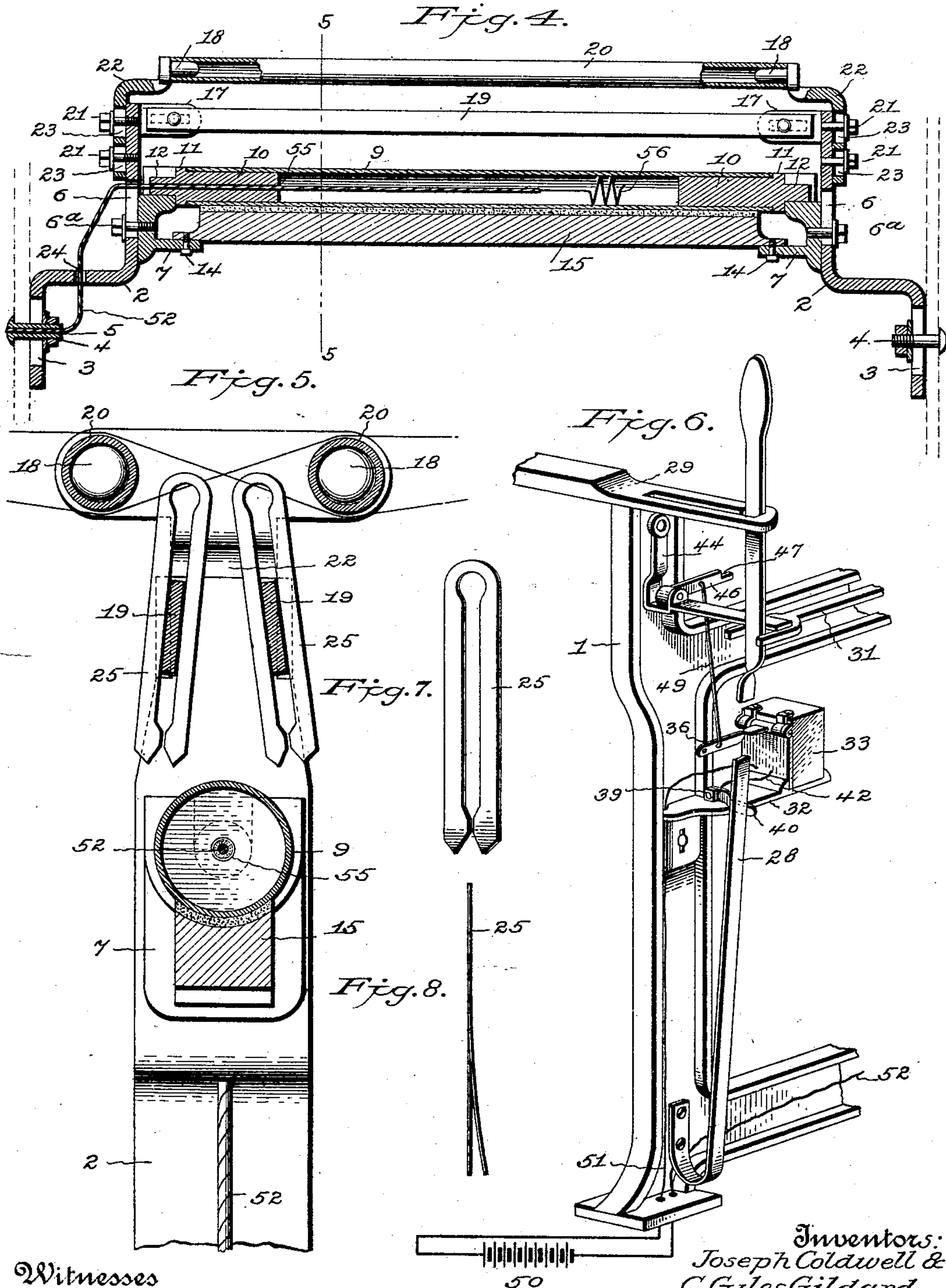
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UNITED STATES PATENT OFFICE.

JOSEPH COLDWELL AND CHRISTOPHER GILES GILDARD, OF FALL RIVER,
MASSACHUSETTS.

ELECTRICAL STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 637,235, dated November 21, 1899.

Application filed May 18, 1899. Serial No. 717,282. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH COLDWELL and CHRISTOPHER GILES GILDARD, citizens of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Electrical Stop-Motions for Looms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in stop-motions for looms and to that particular class wherein an electrical current is employed for setting the stop-motion and is established by the breaking of one or more warp-threads, the invention being designed as an improvement upon certain portions of the construction illustrated, described, and claimed in an application now pending in the United States Patent Office—to wit, Serial No. 696,711, filed November 17, 1898.

The objects of our present invention are twofold, first, to improve the electrical connection between the circuit-wire and the contact-roll, whereby we avoid the necessity of insulating the latter and employing a binding-post and other described accessories; second, to provide for an easy and immediate reconnection of the circuit-wires in case of breakage, thus avoiding the necessity of rewiring the machine, and, finally, to adapt the loom to the employment of tubular metallic lease-rods by providing a simple and convenient means for confining the same in position.

Referring to the drawings, Figure 1 is a side elevation of a loom-frame, showing our invention applied. Fig. 2 is a detail of a casting hereinafter described. Fig. 3 is a detail in perspective of our preferred form of contact. Fig. 4 is a longitudinal sectional view of the upper portion of the loom-frame. Fig. 5 is a section taken on the line 5 5 of Fig. 4. Fig. 6 is a perspective view illustrating the electrically-operated cut-off. Figs. 7 and 8 are details of the drop-bar.

Like numerals of reference indicate like parts in all the figures of the drawings.

In illustrating our invention we have shown so much of an ordinary loom-frame as is deemed necessary to illustrate the application thereto, it being understood that otherwise the loom consists of any usual well-known construction.

Between the side frames 1 of the loom we locate a pair of angular brackets 2, the lower ends or feet of which may be longitudinally slotted, as at 3, to receive the bolts 4, through the medium of which said brackets and the parts carried thereby are vertically adjustable. One of the bolts 4, the one at that side of the loom at which the shipper is located, may be centrally bored, as at 5, for a purpose hereinafter referred to. At or about their middles the brackets 2 may be longitudinally slotted, as at 6, and through the medium of adjusting-bolts 6^a, passed there-through, a pair of L-shaped bearing-brackets 7 may be supported. These bearing-brackets receive the axial ends or trunnions of a loose tubular contact-roll 9 of metal, (preferably of copper.) The axial ends or trunnions may be made of wood or any other electrical non-conducting material, and each comprises a cylindrical body portion 10, that plugs and accurately fits the end of the contact-roll, an annular intermediate enlargement or boss 11, that abuts against the end of the said contact-roll, and beyond the same a reduced cylindrical bearing or journal 12, that rests loosely in the bracket 7, whereby the contact-roll as a whole is capable of being rotated.

Screws 14 are passed upwardly through the lower horizontal ends of the bearing-brackets 7, and adjustably supported thereby is a horizontally-disposed wiper-bar 15, which has its face concaved to conform to the contact-roll and provided with a textile surface, whereby a rotation of the roll will serve to remove any deposits of lint or other foreign deposit therefrom.

Each of the two brackets 2 terminates above the contact-roll in a pair of inwardly and horizontally disposed attaching lugs or ears 17, to which are secured the opposite ends of a pair of parallel circuit-rods 19, which support the series of drop-bars hereinafter de-

scribed in proper position relative to the contact-roll.

To the upper angular ends of the bracket 2 is adjustably secured by bolts 21 a pair of inverted-L-shaped brackets 22, the same having their lower ends slotted, as at 23, to receive the bolts. The inner horizontal ends of these brackets 22 may be T-shaped, and each is provided with a pair of round-ended studs 18, cast integral with the brackets and which take into and approximately fit a pair of horizontally-disposed tubular metallic lease-rods 20, which are preferably formed of enameled bicycle-tubing, whereby they are adapted to successfully resist the wear from the warp-threads running thereover and also rust. The lease-rods are located above and just outside of the vertical planes of the circuit-rods, and over and under said lease-rods the threads are alternately passed, as is usual. The warp-threads being in position, each has suspended thereon a drop-bar or detector, as 25, or it may be of any design, the said drop-bar or detector in the present instance being sprung over the subjacent circuit-rod. It will be obvious that the engagement of the circuit-rods will prevent the drop-bars or detectors from being dragged by the threads from a proper relative position as regards the contact-roll and that they will be suspended from contact with said roll by the said warp-threads.

28 designates the usual shipper, 29 the notched plate by which it is locked and guided, and 31 the operating-lever, which engages the shipper.

A bracket 32 supports a magnet-box 33, and in the upper front corner of the same is pivoted the armature-lever 36. In front of the magnet-box is a stud 39, having a contact-spring 40, designed to be in electrical contact with the shipper when the same is in engagement with the notch of the plate. When in this position, it will be possible for the drop-bar or detector to complete the circuit by contacting with the metallic contact-roll 10; but when the shipper is at the inner end of the slot in the guide-plate such contact is impossible to effect the circuit.

On the stud 39 is a binding-post 41, and from it leads to the pole of the magnet a wire 42.

44 designates the knock-off, 46 the gravity-latch, and 47 the notch or shoulder formed therein.

49 is a wire rod connecting the latch to the armature-lever, so that there is a unity of motion between the two. It will be obvious that if the magnet attracts the armature, as when the circuit is completed, the armature-lever will rise at its outer end and will elevate the latch into the path of the lay, where it is struck thereby and, together with the knock-off, is forced forward, the latter striking the shipper and disengaging the same from the notch in the guide-plate, permitting the

shipper to spring inward and operate the belt-shifter to stop the loom, all as is usual, and to break contact with the contact-spring.

The battery 50 or other source of electrical energy is in the present instance located below the floor, and from one of its poles leads the insulated circuit-wire 51 and from the other the insulated circuit-wire 52. The wire 51 passes to the magnet and the remaining wire 52 passes through the tubular bolt 4. From the inner end of the bolt the wire passes upwardly through a perforation 24 in the bracket 2, and from thence through a longitudinal bore 55, formed in the adjacent axial plug 10 of the contact-roll, and is finally secured to a suitable contact 56, mounted loosely in the contact-roll. Said contact comprises a coiled wire 56^a, the coils of which gradually increase in diameter from point of juncture with wire 52 until they engage the inner walls of said roll. The coil when thus arranged has sufficient natural expansion to cause the same to always maintain a close contact with said roll.

In setting up or wiring the machine an extra amount of wire is passed through the bore 55 of the axial plug at one end of the contact-roll, so that the contact-coil will be located at or near the opposite end of the contact-roll. In case the circuit-wire should become broken at any point instead of being obliged to rewire the entire loom in order to get a sufficient length to unite the two disconnected ends recourse is had to the surplusage of circuit-wire in the roll, the said wire being drawn out a sufficient distance to enable the two severed ends to be reconnected.

Having thus fully described our invention, what we claim is—

1. The combination in a loom, of opposite supports, overhanging brackets adjustably secured to said supports, the inner horizontal ends of said brackets being of approximately T shape, inwardly-disposed integral studs carried by said T-shaped ends, and tubular lease-rods receiving at their ends the said studs, substantially as set forth.

2. In a loom, the combination with opposite supports, bearing-brackets carried thereby, a tubular contact-roll, plugs for the ends of the same provided intermediate of their ends with annular bosses and having their outer ends reduced to form journals fitting the brackets, one of said plugs having a bore, a circuit-wire passing through said bore, a coiled wire connected to said circuit-wire, the coils of the former gradually increasing in diameter until they engage the inner surface of said contact-roll, superimposed lease-rods, and drop-bars or detectors in electrical circuit with the support and supported above the contact-roll, substantially as set forth.

3. In a loom, the combination with a hollow contact-roll terminating in journals or trunnions one of which is bored, an electrical contact device coöperating therewith, of an

electrical circuit-wire passed loosely through the latter, and a coiled wire connected to said circuit-wire, the coils of the former gradually increasing in diameter until they engage the
5 inner walls of said roller, substantially as set forth.

4. In a loom, the combination with an electrical stop-motion comprising a hollow contact-roll and a conducting-wire, said conducting-wire extending into the said roll from one
10 end sufficiently far to constitute a surplus of wire capable of being withdrawn therefrom

for mending purposes, as specified, said wire having sliding contact with said roll at its inner end, and drop-bars or detectors having 15 contact externally with the contact-roll.

In testimony whereof we affix our signatures in the presence of two witnesses.

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CHRISTOPHER GILES GILDARD.

Witnesses:

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