

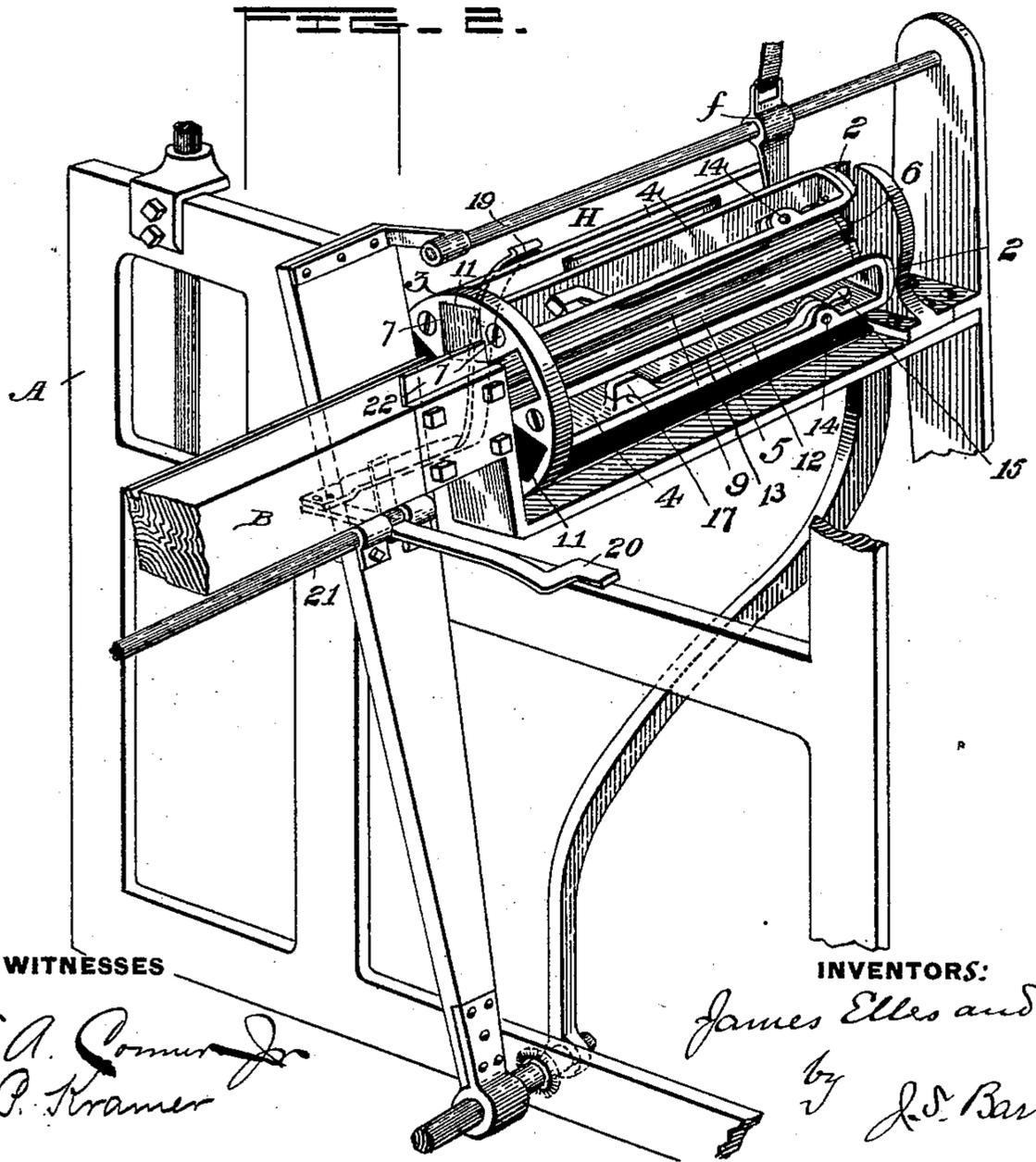
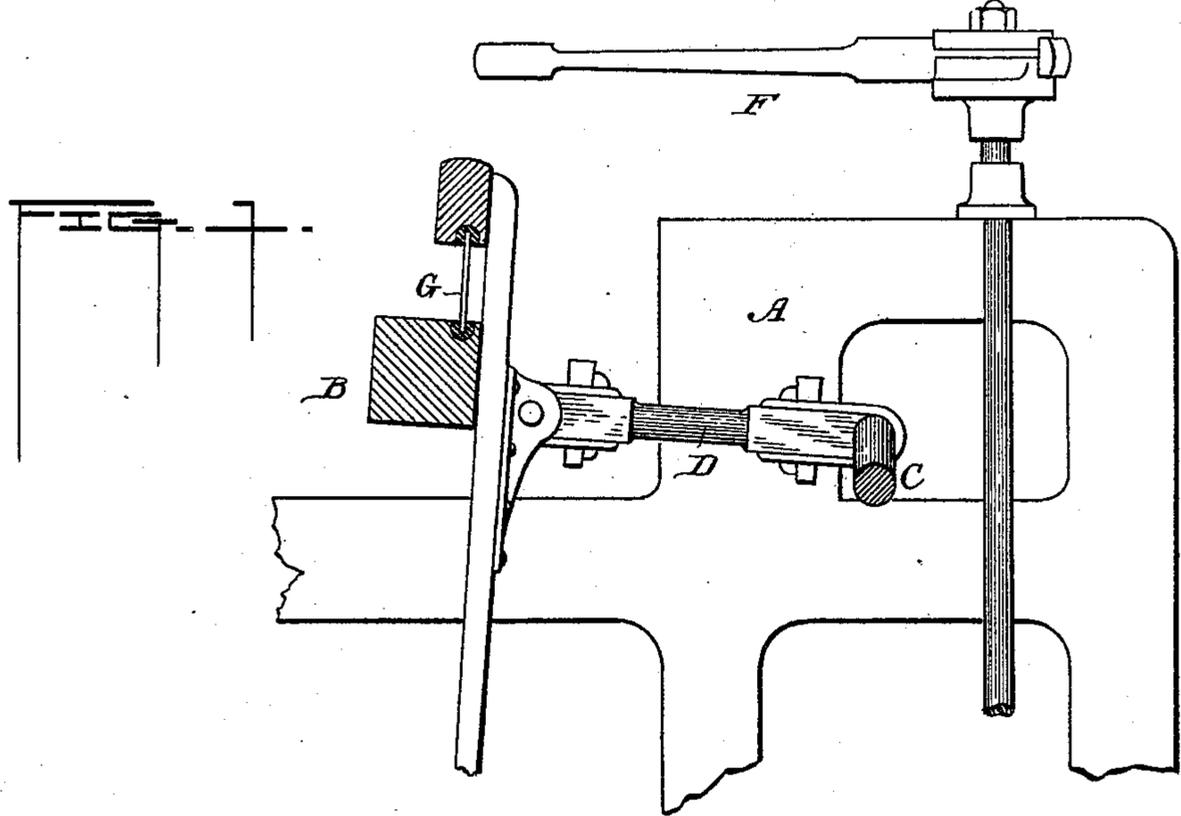
(No Model.)

2 Sheets—Sheet 1.

# J. ELLES & J. SPENCE. LOOM.

No. 453,467.

Patented June 2, 1891.



WITNESSES

*L. A. Connor Jr.*  
*G. P. Kramer*

INVENTORS:

*James Elles and John Spence*  
by *J. S. Barker*  
*Atty.*

(No Model.)

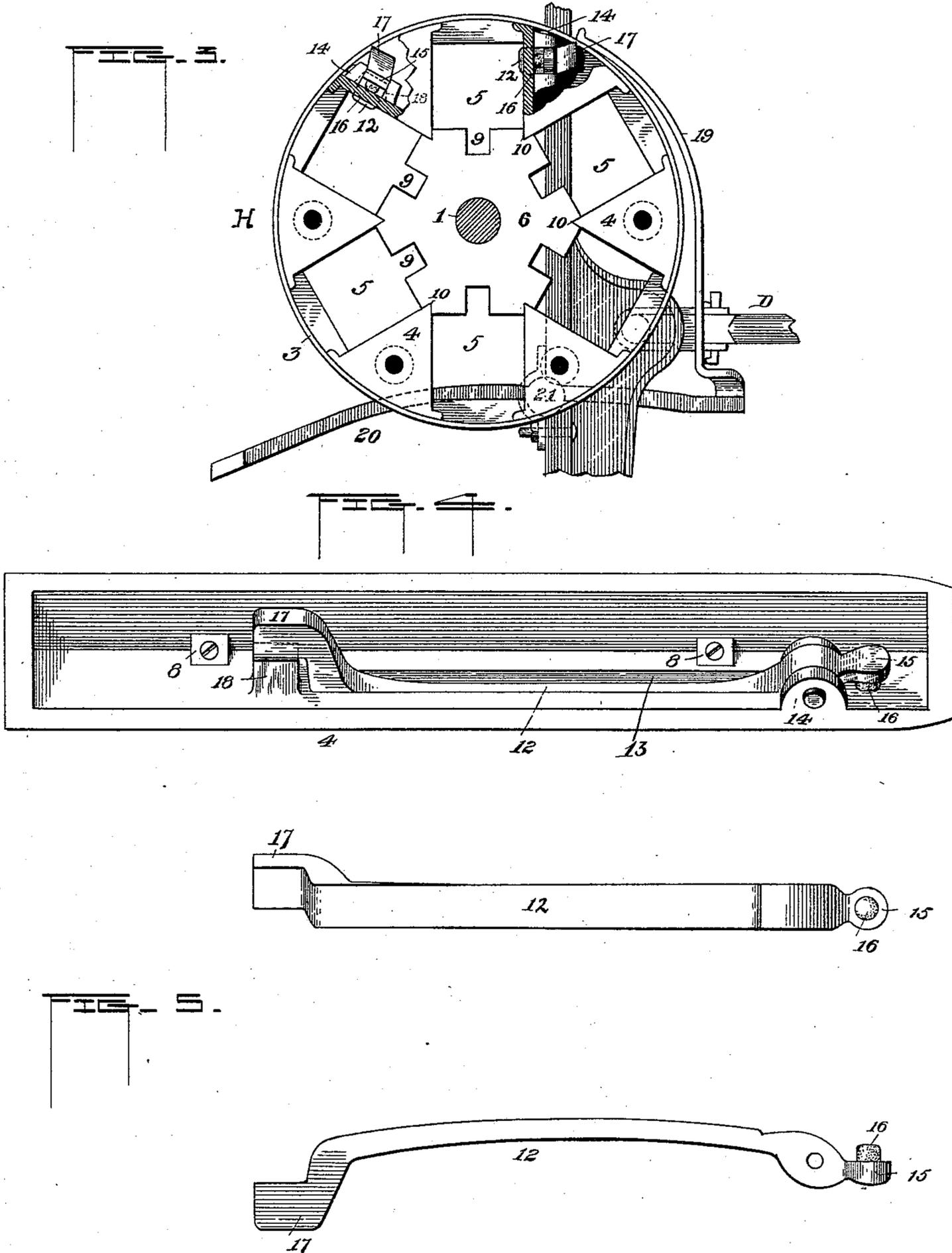
J. ELLES & J. SPENCE.

2 Sheets—Sheet 2.

LOOM.

No. 453,467.

Patented June 2, 1891.



WITNESSES

*L. A. Connor Jr*  
*G. P. Kramer*

INVENTORS:

*James Elles and John Spence,*  
*by J. S. Barker*  
*Atty.*

# UNITED STATES PATENT OFFICE.

JAMES ELLES AND JOHN SPENCE, OF JAMESTOWN, NEW YORK.

## LOOM.

SPECIFICATION forming part of Letters Patent No. 453,467, dated June 2, 1891.

Application filed February 15, 1890. Serial No. 340,613. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES ELLES and JOHN SPENCE, citizens of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Looms, of which the following is a specification.

Our invention relates to looms provided with revolving shuttle-boxes; and it consists of the novel features of construction of the revolving shuttle-box and in the novel arrangements of the parts combined therewith, as will be pointed out hereinafter.

The loom to which our invention is particularly adapted is intended for the weaving of checked fabrics, the shuttles carrying the weft-threads of different colors occupying the different compartments of the revolving shuttle-box, which is, by suitable mechanism which we do not deem it necessary to describe, revolved so as to bring the compartment containing the proper shuttle opposite the shuttle-race on the lay at the proper predetermined times.

That our invention may be the better understood we have illustrated it in connection with so much of a loom as is necessary to show its connection therewith.

Figure 1 is a vertical section of one end of the loom provided with a fast reed, many of the parts of the loom being omitted for the sake of simplicity. Fig. 2 is a perspective view of the lay and shuttle-box. Fig. 3 is an end view of the shuttle-box with its outer end plate removed, showing also those portions of the shuttle-stop mechanism adjacent to the shuttle-box. Fig. 4 is a detached view, enlarged, of one of the division-sections of the shuttle-box. Fig. 5 shows detached views of one of the shuttle-binders.

In the drawings, A designates the loom-frame, in which is mounted the lay B, connected with the crank-shaft C by the links D, and F designates the picker-stick. As these parts may be of any usual or preferred construction, we have not entered into a detailed description thereof.

G represents the reed, which is fast or rigidly secured to the lay-beam. At one end of the lay-beam is supported the revolving shut-

tle-box, which, as a whole, is designated by the letter H. It consists of a central shaft 1, upon which is mounted a block 6, polygonal in cross-section, having as many faces as there are shuttle-compartments in the box. Secured to the opposite ends of this block are the two heads or plates 2 and 3, between which are mounted the V-shaped partition or division sections 4, which divide the box A and form the side walls of a number of compartments 5, arranged concentrically around the shaft 1 and adapted to receive the shuttles. The partitions 4 are held in place by being bolted, as at 7, to the end plates 2 and 3, and at 8 to the block 6. The outer plate 2 is substantially star-shaped—that is, it is cut away opposite the compartments 5, leaving rays to which the partitions 4 are bolted. This is to permit the picker *f* to enter the boxes freely.

In order to properly direct the picker while it is driving the shuttle, we slot or groove the block 6 opposite the central portions of the compartments 5, as at 9, such slots or grooves forming races or channels in which the end of the picker moves in the shuttle-compartments. We prefer that the block 6 should be grooved along its peripheral angles, as 10, to receive the apexes of the partitions 4, as we find that thereby the latter are well supported. The inner plate 3 preferably covers the entire end of the box A, except those portions opposite the compartments 5, where it is provided with openings 11 to permit the entrance and exit of the shuttles.

We prefer to form the partitions 4 of metal and that they should be hollow, both for the sake of lightness and cheapness and also to allow of the shuttle-binders or swells 12 being mounted therein. These binders are of the shape shown in Figs. 4 and 5, each having a curved portion, which is adapted to pass through an opening 13 in the wall of the partition 4 and enter the shuttle-compartment. Each shuttle-binder is pivoted between lugs 14, near the outer end of the partition 4, and is provided with a short extension 15, projecting beyond its pivot, and against which a spring 16, preferably a rubber block, bears to throw the swell or curved portion into the compartment 5. Each shuttle-binder is likewise provided at its end opposite that at

which it is pivoted with a head 17, which projects beyond the periphery of the revolving box, for a purpose to be described.

18 are stops, against which the heads 17 of the shuttle-binders bear, and which prevent their entering too far into the compartments 5 under the influence of the spring 16.

19 is a curved finger extended outside of the shuttle-box, with its end adjacent to the head 17 of the shuttle-binder of the compartment 5, which is opposite the shuttle-race. This curved finger 19 is rigidly connected with the dagger 20, and the two are adapted to turn on a fulcrum consisting of the shaft 21. The end of the dagger is adapted to engage with the frog, (not shown,) and through it operate a stopping mechanism of any preferred character. It will be understood that so long as the shuttles continue to properly enter their compartments in the shuttle-box the binders will cause the end of the dagger to be so elevated as to escape the frog, and the stop mechanism will hence not be operated; but should from any cause a shuttle fail to properly enter its box the binder will not be forced back into the hollow partition, and the dagger being not raised it will operate the mechanism which stops the loom.

22 is a plate secured to the upper face of the lay-beam adjacent to the shuttle-box and arranged to direct or guide the shuttle into the box.

Among the advantages which we claim for a loom provided with our improvements are great speed, a capacity for weaving heavy fabrics, and the effective guard against damage to the loom or the material should a shuttle fail to properly enter its box.

Without limiting ourselves to the precise construction and operation of parts shown, we claim—

1. A revolving shuttle-box for a loom, consisting of a central support and a series of V-shaped hollow partitions separately and detachably secured to and arranged around such support and forming a series of shuttle-compartments, substantially as set forth.

2. A revolving shuttle-box for a loom, consisting of a central support and a series of V-shaped hollow partitions 4, arranged around such support to form a series of shuttle-compartments, in combination with the shuttle-binders mounted within the said partitions and projecting through openings in the walls thereof into the said compartments, substantially as set forth.

3. A revolving shuttle-box consisting of the central supporting-block 6, the V-shaped partitions secured thereto, and the end plates 2 and 3, substantially as set forth.

4. A revolving shuttle-box for a loom, consisting of a central support and a series of hollow metallic partitions, each formed with an opening in one side for the shuttle-binder to project through, the lugs to which the binder is pivoted, and stops to limit the movement of the binders, in combination with the binders, substantially as set forth.

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

JAMES ELLES.  
JOHN SPENCE.

Witnesses:

EDWIN STEAD,  
HERBERT BREARLEY.