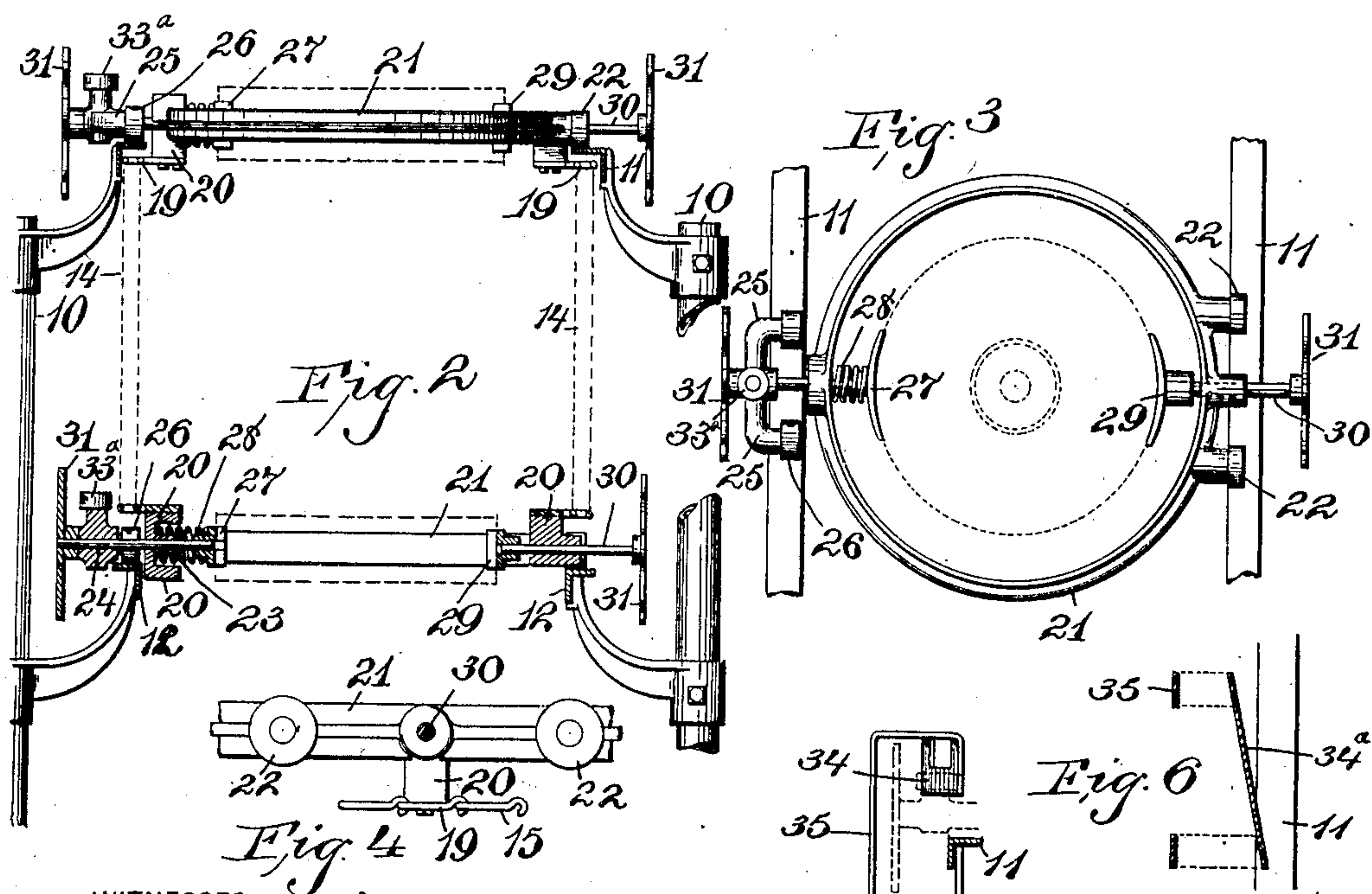
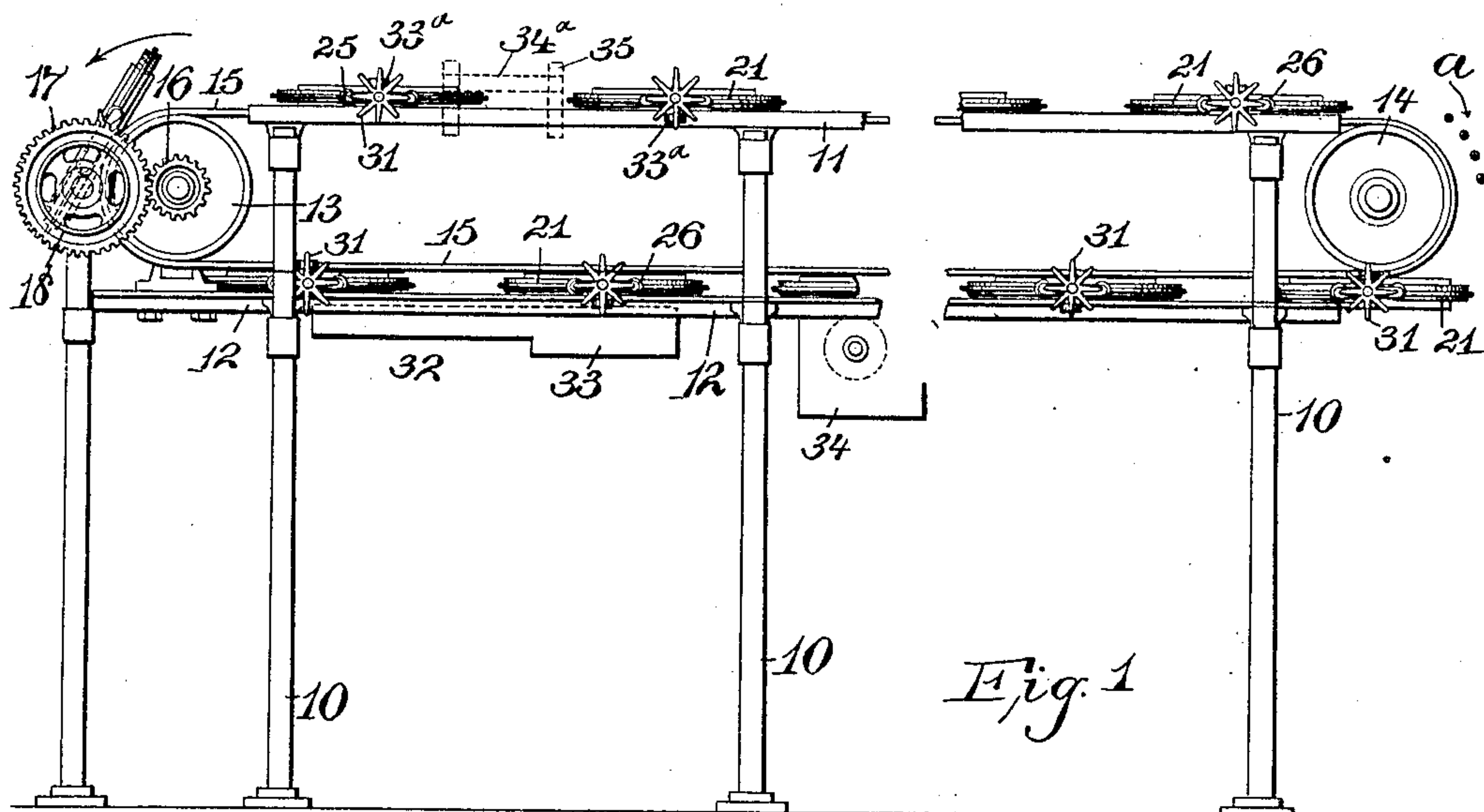


No. 871,818.

PATENTED NOV. 26, 1907.

W. H. PARKER.
MATCH DIPPING APPARATUS.
APPLICATION FILED OCT. 23, 1906.



WITNESSES:
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Fig. 5
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MATCH-DIPPING APPARATUS.

No. 871,818.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed October 23, 1906, Serial No. 340,194.

To all whom it may concern:

Be it known that I, WILLIAM H. PARKER, of Passaic, Passaic county, New Jersey, have invented a new and Improved Match-Dipping Apparatus, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of match dipping apparatus which is adapted to handle match splints which have previously been assembled into a coil.

The invention is more particularly intended for handling match coils in which the splints project from opposite sides of the coil, and to this end the invention is adapted to grip the coils firmly and hold them so that the projecting ends can be placed against a hot plate, and then in the paraffin and composition mixtures, after which the coils are reversed so that the opposite ends of the splints are presented. My invention is intended to provide a convenient means for doing this work, and is also intended to produce a simple apparatus, into which the coils can be easily placed and from which they will be discharged automatically.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken side view of the apparatus, and Fig. 2 is a cross-section showing the ring on the upper track in elevation, and the one on the lower track in section. Fig. 3 is a top view of one of the rings for holding a coil, and Fig. 4 shows the connection between a ring and one of the chains that acts to convey the rings in the apparatus. Figs. 5 and 6 are a detail of a tripping mechanism to release a coil from its ring.

The apparatus is mounted on supports which are arranged at suitable intervals, and are usually built up into a machine from thirty to forty feet long to allow sufficient travel for the composition of the match to harden. On these supports are secured an upper track 11 and a lower track 12, and on each end of the apparatus are arranged sprockets 13 and 14, these being arranged in pairs on the ends of the machine, and over these sprockets pass the sprocket chains 15. One of the sprockets, as 13, can be provided with a gear 16 meshing with a second gear 17, the whole being driven by a suitable drive pulley 18.

Secured, as shown in Fig. 4, to the chain

15, and set in as one of the links of the chain, is a link 19 that is secured to a block 20 on each side of a ring 21, thus when the chain travels it carries along with it, at intervals, these rings. Each ring has, on one side, a set of rollers 22 which are arranged to bear on the tracks 11 and 12, according to which track the ring happens to be traveling over, and on the other side of the machine, each ring is provided with a bearing portion 23 through which passes a rod 24, and on the end of the rod is arranged a U-shaped truck 25, on the ends of which are arranged the rollers 26 which provide for an easy riding of the ring on this side of the machine. The rod 24 is arranged to slide in the bearing 23 and is provided with a jaw 27, the jaw being normally forced toward the center by a spring 28, and being opposed by a second jaw 29 arranged on a shaft 30 that is rotatable in the bearing on the ring, but is held against any sliding movement. Thus the jaw 27 can be withdrawn to release a coil, shown in dotted outline in the figures, or allowed to normally rest against the coil to securely grip it. A star wheel 31 is arranged on the outside end of each of the shafts 24 and 30 and causes the turning of the coil in its ring, when the star wheel engages any suitable turning means such as shown at *a* in Fig. 1, this showing being simply diagrammatic.

When the machine is in operation, the operator inserts a coil into every alternate ring as it travels past him by pulling back the star wheel 31 on the spring actuated rod 24, and then allowing it to snap back so that the jaw 27 grasps the coil. The rings are passed in the direction of the arrow in Fig. 1 and the coil in each alternate ring will be carried down submitting the ends of the splints in the coil to the warming pan 32, and then to the paraffin tank 33 after which they pass on and are dipped in the composition tank 34, this being of any usual construction. Each ring then passes over the sprockets 14 and the star wheels 31 engaging the turning mediums *a*, the coil in each ring is turned over and passes along the upper track allowing the composition on one side of the coil to dry. When the ring passes over the sprocket 13 again, the other side of the coils are subjected to the same treatment, as hereinbefore described.

Now it will be noticed in Fig. 1 that every other roller 33^a, which is mounted on the truck 25 of each ring, is arranged to point up-

ward, and every other roller 33^a is arranged to point downward. When the coils that have been entirely finished are coming along the upper track for the second time, the rollers 33^a on those rings will be pointed upward and will engage a track 34^a arranged on the bracket 35 attached to one of the tracks 11. The roller 33^a, traveling along this track 34^a, will be forced outward, its jaw 27 will be pulled away from the coil that it is holding, and the coil will drop. It will be understood that a board or other suitable support can be placed across the machine beneath the point where the coils are to be discharged, so as to receive them as they are dropped. The travel of this machine is slow and there will be sufficient time to insert a fresh coil of splints in the ring by the time the roller 33^a passes off the end of the track 34^a and snaps back into place by reason of the spring 28. This is done by placing one side of the coil against the jaw 29, springing out the jaw 27 so that the coil is held between the two jaws, and then releasing the jaw 27 to the pressure of its spring. The next ring on the chain, to the one that has just been emptied, will have its roller pointing downward, and it will not be opened to release the coil until the other side is dipped and it will then be released by reason of the roller 33 being pointed upward, the truck 25 turning with the shaft 24 and the star wheel 31, when the ring passes the point occupied by the turning medium *a*. Thus the trucks are turned over with the coils on each complete passage through the machine, and the coils turn with them so that in every other trip the roll 33 is pointed downward to avoid the track 34.

The apparatus is constructed with sufficient distance between the composition tank and the end of the machine to allow sufficient drying of the composition, so that when the coils are unloaded from the rings, the composition is hard enough to allow the coil to be handled. The turning mediums *a* are preferably arranged on both sides of the machine to cause the star wheels, on the opposed sides of the same ring, to turn together so that the coil is not subjected to any twisting strain and turns easily.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent,—

1. A match dipping apparatus comprising an endless chain of clamps, each clamp being adapted to grip a coil of matches, and auto-

matic means for tipping over the coils with relation to the chain of clamps to present opposite ends of the matches.

2. A match dipping apparatus comprising an endless chain of connected frames, clamps carried by the frames to grip match coils, and automatic means for tipping over the clamps with relation to the chain of clamps at a predetermined point during the travel of the apparatus.

3. A match dipping apparatus comprising a series of clamps linked together in a chain, each clamp being constructed to suspend a match coil, means for tipping over or reversing the coil with relation to the chain to present opposite ends of the matches, and automatic means for opening the clamps to deposit the coil.

4. A match dipping apparatus, comprising a series of spring pressed clamps, each arranged to grip a match coil and suspend it with opposite sides and the opposite ends of the matches exposed, and automatic means for opening the clamps against the pressure of the springs.

5. A match dipping apparatus comprising a series of frames arranged in the form of a chain, tracks spaced apart in an upper and lower series, rollers on the frames to follow the tracks, coil clamps mounted in the frames so as to expose the opposite ends of the matches held in the coils, and means for reversing the frames, clamps, and coils.

6. A match dipping apparatus comprising a series of frames carried by a chain, and a coil clamp for each frame, said clamp consisting of a turning but non-sliding jaw, and a second opposed sliding and turning jaw, the jaws being arranged to grip a coil between them.

7. In a match dipping apparatus the combination with the traveling frames and the turnable coil clamps in the frames, of a star wheel connected to each clamp, and an abutment in the path of each star wheel.

8. In a match dipping apparatus, the combination with the traveling coil gripping clamps, each having a movable releasing jaw, and each suspended so as to expose opposite ends of the matches held in the coil, of an inclined track, and an abutment connected with the jaw to engage the track.

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Witnesses:

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