This invention relates to improvements in steam turbine locomotives of the Mallet type, and has for its object to provide a novel construction and arrangement of the parts of the propelling gear whereby to obtain a high degree of efficiency.

In the accompanying drawing wherein an approved embodiment of the invention is illustrated—

Figure 1 is a side elevation of a locomotive of the Mallet type showing the invention applied thereto,

Figure 2 is a plan view, partly in section, of a turbine unit and the reducing gear associated therewith.

Referring to the drawing in detail the driving turbines are indicated generally in Figure 1 at T and are located medially of the locomotive boiler C outside of the longitudinal beams L. A double train of reducing gears I are interposed between the turbines T and jack shafts A connected with the two groups of driving axles 50 by the usual driving rods. As illustrated the driving axles 50 of each group are connected with a separate driving rod to which motion is imparted from the jack shafts A.

The locomotive is equipped with a condenser K, boiler feed pump p, and a fan V for the boiler draft, all arranged below or in front of the boiler. The cooling apparatus r for the water circulating in the condenser is also arranged in the front part of the locomotive, and is associated with the circulating pump c.

Each turbine unit is constituted by a high pressure turbine 1 and a low speed turbine 2 which works in series with the high pressure turbine when the speed of the locomotive is less than half its maximum, and the two low pressure turbines 3 and 4 working in parallel. That is to say, they receive equal portions of the steam which is discharged into them direct from the high pressure turbine when the speed of the locomotive is more than half of its maximum or, in other cases, from the low speed turbine.

The casing containing the reduction gears I is placed under the boiler between the side members L and each consists of the jack shaft A carrying the worm wheel 11 driven by pinion 12 fixed to shafts (not shown) laterally of worm wheels 13 which latter are driven by pinion 14 on shafts 12’. The shaft 12’ of the front pinions 14’ is coupled at each end to the two low pressure turbines 3 and 4, while shaft 12” for the rear pinions 14’ is driven at one end by the high pressure turbine 1 and at the other end by the low speed turbine 2.

Pipe 6 connects turbine 1 to the low speed turbine 2; this latter is connected with low pressure turbines 3 and 4 through pipes 7 and 5. Pipe 8 connects the high pressure and the low speed turbines 1 and 2 together for reverse motion. The turbine units are controlled from the engineer’s cab by means of a hand wheel Z which acts through a worm on the rod y on which the cams are fixed for the control of the turbines and the steam leaves the two low pressure turbines 3 and 4, symmetrically arranged on either side of the locomotive, through the pipes 15 exhausting into the surface condenser K.

Having now described my invention and how the same is to be carried out, what I claim as my invention is:

1. A steam turbine locomotive of the Mallet type, including driving and carrying axles divided into two groups, a jack shaft for driving each group, one of the jack shafts being operated by low pressure turbines and the other jack shaft by the high pressure and low speed turbines.

In testimony whereof I affix my signature.

GIUSEPPE BELLUZZO.